

**WHAT IS CLAIMED IS:**

1. An apparatus for air curing tobacco, comprising:
  - an enclosure in which tobacco leaves and/or plants can be air cured;
  - at least one vertically arranged air duct, positioned in a central portion of said enclosure, said at least one vertically arranged air duct enclosing at least one in-line fan positioned in said at least one vertically arranged air duct;
  - 5 at least one ventilating fan located in an upper portion of said enclosure;
  - and
  - 10 at least one openable and closeable opening in at least one side wall of said enclosure.
2. The apparatus according to claim 1, further including at least one temperature sensor that detects temperature inside said enclosure, and at least one temperature sensor that detects temperature outside said enclosure.
3. The apparatus according to claim 2, further including at least one humidity sensor that detects humidity inside said enclosure, and at least one humidity sensor that detects humidity outside said enclosure.
- 15 4. The apparatus according to claim 3, wherein a programmable control system receives input from at least one of said temperature and humidity sensors and provides controlling output to at least one of said at least one in-line fan, said at least one ventilating fan, and said at least one openable and closeable opening.
- 20 5. The apparatus according to claim 1, further including a device that injects an aqueous liquid into said vertically arranged air duct.

6. The apparatus according to claim 5, further including at least one temperature sensor that detects temperature inside said enclosure, and at least one temperature sensor that detects temperature outside said enclosure.

7. The apparatus according to claim 6, further including at least one humidity sensor that detects humidity inside said enclosure, and at least one humidity sensor that detects humidity outside said enclosure.

8. The apparatus according to claim 7, wherein a programmable control system receives input from at least one of said temperature and humidity sensors and provides controlling output to at least one of said at least one in-line fan, said at least one ventilating fan, said at least one openable and closeable opening and said device that injects an aqueous liquid.

9. The apparatus according to claim 8, further including a source of a disinfectant that can be added to said aqueous liquid to be injected by said device.

10. The apparatus according to claim 1, further including a device that introduces steam into said vertically arranged air duct.

11. The apparatus according to claim 10, further including at least one temperature sensor that detects temperature inside said enclosure, and at least one temperature sensor that detects temperature outside said enclosure.

12. The apparatus according to claim 11, further including at least one humidity sensor that detects humidity inside said enclosure, and at least one humidity sensor that detects humidity outside said enclosure.

5        13. The apparatus according to claim 12, wherein a programmable control system receives input from at least one of said temperature and humidity sensors and provides controlling output to at least one of said at least one in-line fan, said at least one ventilating fan, said at least one openable and closeable opening and said device that introduces steam into said vertically arranged air duct.

10        14. The apparatus according to claim 13, further including a source of a disinfectant that can be added to said steam to be injected by said device.

15        15. A method of air curing tobacco, the tobacco being hung in an enclosure having at least one vertically arranged air duct positioned in a central portion of the enclosure, at least one in-line fan positioned in a vertical portion of the at least one vertically arranged air duct, at least one ventilating fan located in an upper portion of the enclosure and at least one openable and closeable opening in at least one side wall of the enclosure, the method comprising:

opening the at least one opening; and

15        operating the at least one ventilating fan to force air down through the tobacco from the upper portion of the enclosure.

20        16. The method according to claim 15, further including:  
monitoring at least one of temperature and humidity, inside and outside of said enclosure;

20        outputting data obtained in said monitoring step to a programmable controller; and

controlling the opening of the at least one opening and the operation of said at least one ventilating fan with said programmable controller based on said data.

17. A method of air curing tobacco, the tobacco being hung in an enclosure having at least one vertically arranged air duct positioned in a central portion of the enclosure, at least one in-line fan positioned in a vertical portion of the at least one vertically arranged air duct, at least one ventilating fan located in an upper portion of the enclosure and at least one openable and closeable opening in at least one side wall of the enclosure, the method comprising:

closing the at least one opening; and

introducing an aqueous solution or steam into the at least one vertically arranged air duct and operating the at least one in-line fan to diffuse moisture and drive it upwards through the at least one vertically arranged air duct.

18. The method according to claim 17, further including:

monitoring at least one of temperature and humidity, inside and outside of said enclosure:

outputting data obtained in said monitoring step to a programmable controller; and

controlling the closing of said at least one opening and the introduction of an aqueous solution or steam and operation of said at least one in-line fan with said programmable controller based on said data.

19. The method according to claim 18, wherein the aqueous solution or steam introduced into the lower portion of the at least one vertically arranged air duct includes a disinfectant.

20. The method according to claim 19, wherein the disinfectant includes chlorine dioxide in gaseous or liquid form.